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24112	7590	11/29/2006	EXAMINER	
COATS & BENNETT, PLLC P O BOX 5 RALEIGH, NC 27602			ELALLAM, AHMED	
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			2616	

DATE MAILED: 11/29/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary	Application No. 09/826,224	Applicant(s) CHUN ET AL.	
	Examiner AHMED ELALLAM	Art Unit 2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 July 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10, 15-17, 19-23 is/are rejected.
- 7) ☒ Claim(s) 11-14, 18 and 24 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This office action is responsive to amendment filed on 07/21/2006. The Amendment has been entered.

Claim Objections

1. Claims 3, 9, 10 and 22 are objected to because of the following informalities:

In claim 3, the phrase "said distributed ATM switching fabric" lack antecedent basis. Claim 3 is treated as if it depends from claim 2, since claim 2 provides for the antecedent basis.

In claims 9 and 10, the phrase "said processing subrack" lack antecedent basis. It should be "said at least one processing subrack" instead.

In claim 10, 16 and 17, the phrase "said processing subracks" lack antecedent basis.

Appropriate correction is required.

In the following rejection, claim 10 is to be interpreted, given the objections above as related to one processing subrack comprising plurality of resources pools and switching resources.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 15 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The specification doesn't adequately describe the communication switches on a hub subrack and on a processing subrack being Ethernet switches or Internet protocol switches. The specification doesn't give any detail of an IP or Ethernet distributed switching fabrics and their corresponding structures and their interconnection and how they operate using Ethernet or IP protocols, and how the base station controller having resources being accessed through such an IP or Ethernet switches and the details of how such switches are configured.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 16 and 22 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 16, the phrase "each said mixed-architecture processing subrack" lack antecedent basis, similarly the phrase "said processing subracks" lack antecedent basis. Such lack of antecedent basis rendered the claim vague and indefinite.

Regarding claim 22, the phrase "said resource pool" lack antecedent basis. In addition the phrase "**a portion of resource pool**" is understood from the specification to mean a resource pool that provide a specific call processing function. However in the context of the claim, a portion of resource pool is misleading in that a portion of a given resource pool doesn't provide a whole call processing function. It is suggested to change "a portion of each said resource pool" in accordance with the specification and to better claim the invention.

In the following rejection, the claimed limitation in claim 22 is interpreted, as "each processing subrack comprises resources from each of said plurality of resource pools".

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-4, 6, 8 and 21 rejected under 35 U.S.C. 103(a) as being unpatentable over Spartz et al, US 5,878,036 in view of Simons et al, US (7,039,046). Hereinafter respectively referred to as Spartz and Simons.

Regarding claims 1 and 2, with regard to figure 5, Spartz discloses a base station controller system 104 (BSC) communicatively coupled to a GSM MSC (claimed core network), comprising:

A plurality of resources (selection subsystem 204, DATA PROCESSING AND SERVICE OPTIONS 210, CDMA INTERCONNECT SUBSYSTEM 200) to support wireless communication with a plurality of wireless access terminals (wireless terminal are connected through the BTS 102 (Base Transceiver Stations) (Claimed plurality of resource pools to support wireless communication with a plurality of wireless access terminals, each said resource pool performing a defined call processing function), a switch 212 for providing access to the resources, see column 9, lines 51-67 and column 10, lines 22. The switch is shown to be connected to wireless access terminals (not shown in figure 5) and the core network (MSC), a configuration of the switch is inherent to Spartz because that is required for providing the connectivity between the wireless access units and the MSC.

Spartz doesn't specify the switch (claimed switch fabric) provides redundant and independent access to each of the resource (pools) such that resources from each said resource pool are independently selectable from resources in other said resource pools by configuring said switching fabric; and a system controller to configure the switch fabric to selectively allocate resources from the resource (pools) to communicatively connect the wireless access terminal with the core network (as in claim 1), and the switch fabric being a distributed ATM switching fabric (as in claim 2).

However, Simons discloses a distributed ATM switching fabric for providing redundant and independent data transfer for a plurality of requests, see column 3, lines 12-35, and column 4, lines 11-30.

Therefore, It would have been obvious to a person of ordinary skill in the art at the time the invention was made to implement the distributed ATM switch fabric of Simons in lieu of the switch of Spartz. A person of skill in the art would be motivated to do so by recognizing the advantage of fault handling in one of the elements of Simons such as a line card without disrupting the overall functionality of the switching structure. The advantage would be the ability to scale the base station controller of Spartz to accommodate new services (Simons, Abstract). Another advantage would be to the fault tolerance that the distributed switching fabric would provide in the system of Spartz.

Regarding claim 3, Simons discloses a centralized ATM switching fabric communicatively coupled to a plurality of distributed ATM switching subsystem, at least one of the switch subsystem for providing redundant communication links between various physical interfaces or ports and the centralized ATM switching fabric, see column 3, lines 12-35, and column 4, lines 11-30. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to implement the distributed ATM switch fabric of Simons in lieu of the switch of Spartz. A person of skill in the art would be motivated to do so by recognizing the advantage of fault handling in one of the elements of Simons such as a line card resource implementation without disrupting the overall functionality of the switching structure. The advantage would be

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the ability to scale the base station controller of Spartz to accommodate new services (Simons, Abstract). Another advantage would be to the fault tolerance that the distributed switching fabric would provide in the system of Spartz.

Regarding claim 4, Spartz inherently comprise front haul exchange termination resources because that is required for communication with the MSC (mobile switching center) in the core network. See figure 2.

Regarding claim 6, with reference to figure 5, Spartz discloses a selection subsystem 204 (claimed selector element resources) that provides for radio link management and protocol support for voice, data, and packet data calls. See column 18, lines 36-49, and column 21, lines 29-52.

Regarding claim 8, with reference to figure 5, Spartz shows the BSC in connection with a plurality of base station transceiver stations 102 (providing RF communications) through a an interconnect subsystem 200. (Inherently the system of Spartz have back haul exchange termination resources because that is required to communicate with the BTS to support calls from wireless access terminal connected to the BTS).

Regarding claim 21, with regard to figure 5, Spartz discloses method of structuring a base station controller system wherein call processing for each call being routed through the base station controller comprises performing a plurality of call processing functions, the method comprising: a base station controller system 104 (BSC) communicatively coupled to a GSM MSC (claimed core network), comprising:

Providing a plurality of resources pools (selection subsystem 204, DATA PROCESSING AND SERVICE OPTIONS 210, CDMA INTERCONNECT SUBSYSTEM 200) to support wireless communication with a plurality of wireless access terminals (wireless terminal are connected through the BTS 102 (Base Transceiver Stations) (claimed providing a plurality of resource pools, each one of said resource pools providing one of the plurality of call processing functions; interconnecting said plurality of resource pools through a configurable switching fabric), a switch 212 for providing access to the resources, see column 9, lines 51-67 and column 10, lines 22. The switch is shown to be connected to wireless access terminals (not shown in figure 5) a configuration of the switch is inherent to Spartz because that is required for providing the connectivity between the wireless access units and the MSC, each connection routed through the base station controller inherently requires a specific set of combination resources in accordance with the type of service requested, see abstract. (Claimed allocating a specific combination of resources selected from one or more resource pools in said plurality of resource pools to each call being routed through said base station controller by configuring said switching fabric).

Spartz doesn't specify providing redundant and independent access to each resource pools providing redundant and independent access to each resource pool by interconnecting plurality of resource pools through the switching fabric.

However, Simons discloses switching fabric for providing redundant and independent data transfer for a plurality of requests, see column 3, lines 12-35, and column 4, lines 11-30.

Therefore, It would have been obvious to a person of ordinary skill in the art at the time the invention was made to implement the switch fabric of Simons in lieu of that of Spartz so to provide redundancy to access the resources. A person of skill in the art would be motivated to do so by recognizing the advantage of fault handling in one of the elements of Simons such as a line card without disrupting the overall functionality of the switching structure. The advantage would be the ability to scale the base station controller of Spartz to accommodate new services (Simons, Abstract). Another advantage would be to the fault tolerance that the distributed switching fabric would provide in the system of Spartz.

5. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Spartz in view of Simons as applied to claim 1 above, and further in view of admitted prior art. Hereinafter referred to as APA.

Regarding claim 5, Spartz discloses service option element 210 (figure 5), in addition it discloses vocoding resources, see Abstract. Spartz doesn't explicitly disclose the service option element provides echo cancellation functions for voice calls. However, APA discloses a base station controller of prior art system comprising SBSs 20 for providing vocoding along echo cancellation processing, see paragraph [0016]. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide the prior art teaching of echo cancellation to the vocoding of voice call resources of Spartz so that high voice quality services can be provided in the system of Frantz in view of Simons.

6. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Spartz in view of Simons as applied to claim 1 above, and further in view of Li et al, US (7,092,727). Hereinafter referred to as Li.

Regarding claim 7, Spartz in view of Simons as indicated above discloses all the limitations of base claim 1, except that they do not disclose packet network exchange termination resources to communicatively couple with a packet data serving node in the core network.

However, with reference to figure 1, Li shows a BSC 110 connected to a packet data serving node (PDSN) 114 through a PCF 111B (Packet Control Function) (Claimed packet network exchange termination resources).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to use a packet control function along a PDSN as taught by LI, as part of the BSC resources of Spartz in view of Simons so that the system of Spartz in view of Simons can provide Internet services to the wireless subscribers. A person of skill in the art would be motivated to do so by recognizing the valuable services that the Internet access provides for the customers of Spartz in view of Simons by connecting the BSC to an available PDSN. It is advantageous to keep subscribers from switching service to another one of competing wireless service providers and for generating more revenues by the added Internet connection.

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7. Claim 9, 10, 17 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Spartz in view of Marin et al, US (6,501,768) and further in view of Ji et al, US (6,496,475). Hereinafter referred to as Marin and Ji respectively.

Regarding claim 9, with regard to figure 5, Spartz discloses a base station controller system 104 (BSC) comprising:

A plurality of resources (selection subsystem 204, DATA PROCESSING AND SERVICE OPTIONS 210, CDMA INTERCONNECT SUBSYSTEM 200) to support wireless communication with a plurality of wireless access terminals (wireless terminal are connected through the BTS 102 (Base Transceiver Stations) (a plurality of resource pools, each said resource pool comprising resources supporting at least one call processing function), Spartz further discloses call control processor 202 and BSC A-interface 206 that configure and control the various other systems within BSS 105, see column 10, lines 65-67 and column 11, lines 1-14. (Claimed system controller to allocate selected combinations of specific resources from one or more of said plurality of resource pools to provide desired call processing for respective ones of calls to and from a plurality of wireless access terminals).

Spartz doesn't specify the base station controller is organized as:

a hub subrack comprising a central switching resource and said system controller; and at least one processing subrack to carry said plurality of resource pools, each said processing subrack comprising resources from each of said plurality of resource pools, and further comprising switching resources to communicatively couple said processing subrack to said hub subrack.

However, Marin discloses in figures 3 and 4, and column 6, lines 4-21, a modular rack/subrack structure for a base station apparatus, with processing and switching capabilities. It would have been obvious to one skilled in the art at the time of the invention to distribute the call processing resources on different subracks as taught by Marin in the base station controller of Spartz. The motivation would be to be able to add or remove components to increase or decrease capacity (see Marin, column 5, lines 45-48).

Each said processing subrack comprising resources from each of said plurality of resource pools is missing from Spartz in view of Marin. This is disclosed in Ji, column 3, lines 26-30 and 45-48 (the channel element resources, which are capable of performing all necessary call functions, are disposed on different cards). It would have been obvious to one skilled in the art at the time of the invention to implement the invention of Ji in the system of Spartz in view of Marin so to avoid overloading any individual piece of equipment (card) with too many calls. It would be also advantageous to avoid multiple channel failures in case of failure of a card (see Ji, column 3, lines 3-9).

Regarding claim 10, as best understood, Spartz discloses a switch in connection with the call processing resources.

Regarding claim 17, as indicated above with regard to claim 9, Spartz in view of Marin and in view of Ji discloses the structure of claim 17 except a general processing board for configuring the structure. However, since resources for call processing can be implemented on cards and accessed through the switching fabric of Spartz/Marin/Ji,

Inherently a control card (claimed general processing board) would be required to configure such switching fabric.

Regarding claim 19, claim 19 specifies the resource pools that are used in the base station controller. Examiner take official notice that these resources are well known in the art and used in the base station controller or radio network controller to control the communications between the base transceiver systems and MSCs and data networks. It would have been obvious to a person of ordinary skill in the art, at the time the invention was made to provide the BSC of Spartz in view of Marin and further in view of Ji with the needed resources so to provide the BSC with the tools required to carry the known BSC functions.

8. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable Spartz in view of Marin and further in view of Ji as applied to claim 9 above, and further in view of Li.

Regarding claim 20, Spartz in view of Marin and further in view of Ji as indicated above discloses all the limitations of base claim 9, except that they do not disclose

However, with reference to figure 1, Li shows a BSC 110 connected to a packet data serving node (PDSN) 114 through a PCF 111B (Packet Control Function) (packet core network exchange termination resources to route packet data calls to and from one or more of the plurality of wireless access terminals to an external packet data network).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to use a packet control function along a PDSN as taught by LI, as part of the BSC resources of Spartz in view of Marin and further in view of Ji so to provide Internet services to the wireless subscribers. A person of skill in the art would be motivated to do so by recognizing the valuable services that the Internet access provides for the customers of Spartz in view of Marin and further in view of Ji by connecting the BSC to an available PDSN. It is advantageous to keep subscribers from switching service to another one of competing wireless service providers and for generating more revenues by the added Internet connection.

9. Claims 22-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Spartz in view of Simons and further in view of Marin and further in view of Ji.

Regarding claim 22 (as understood), organizing the base station controller system as a rack system comprising a hub subrack providing centralized switching resources, and one or more processing subracks, and rack switching resources to interface with said hub subrack is missing from Spartz in view of Simons. However, Marin discloses in figures 3 and 4, and column 6, lines 4-21, a modular rack/subrack structure for a base station apparatus, with processing and switching capabilities. It would have been obvious to one skilled in the art at the time of the invention to implement the redundant architecture of Spartz in view of Simons as rack/subrack structure as taught by Marin so to provide a modular Base station controller (Marin). The motivation would be to be able to add or remove components to increase or

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decrease capacity (see Marin, column 5, lines 45- 48). Each said processing subrack comprising resources from each of said plurality of resource pools is missing from Elliot. This is disclosed in Ji, column 3, lines 26-30 and 45-48 (the channel element resources, which are capable of performing all necessary call functions, are disposed on different cards). It would have been obvious to one skilled in the art at the time of the invention to use the teaching of the cards of Ji in the system of Spartz in view of Simons in view of Marin. The motivation would be to avoid overloading any individual piece of equipment (card) with too many calls, and to provide modularity. (Simons and Marin).

Regarding claim 23, Simons and Marin both discloses system modularity. (Claimed increasing a call processing capacity of the base station controller system based on adding additional ones of said processing subracks as needed).

Allowable Subject Matter

10. Claims 11-14, and 18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim 24 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Response to Arguments

11. Applicant's arguments with respect to claims 124 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: See Form PTO-982.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to AHMED ELALLAM whose telephone number is (571) 272-3097. The examiner can normally be reached on 9-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, To Doris can be reached on (571) 272-7629. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


DORIS H. TO
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AHMED ELALLAM

Examiner

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